FIG. 1

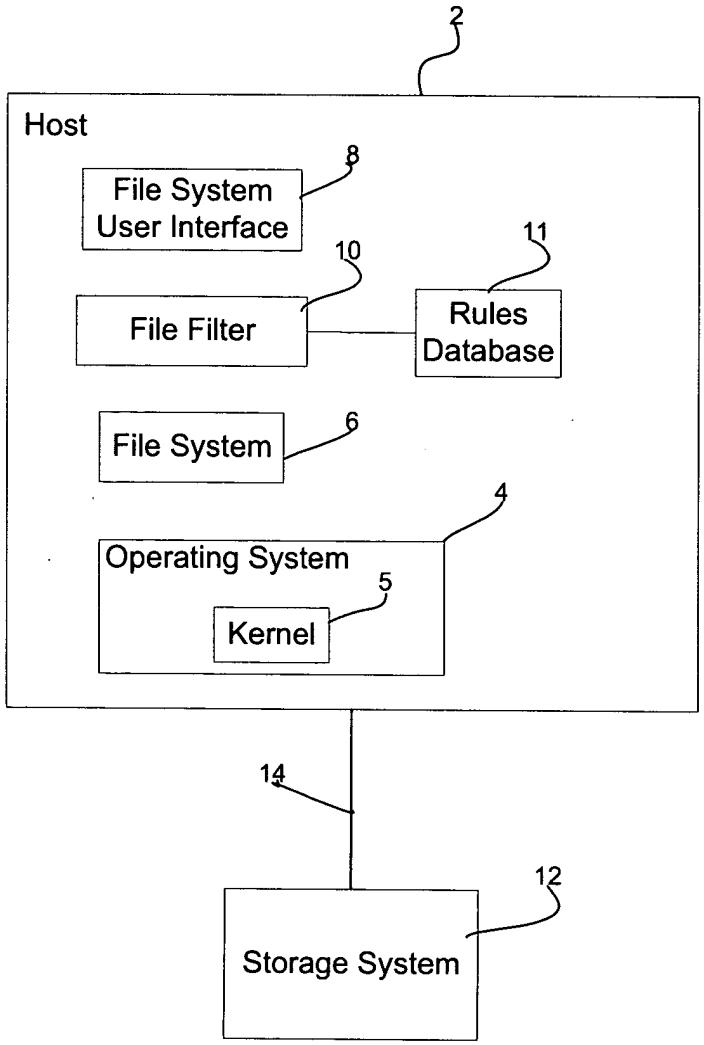

2
Host
8
File System User Interface
10
11
File Filter
Rules Database
6
File System
4
Operating System
5
Kernel
14
12
Storage System

FIG. 2

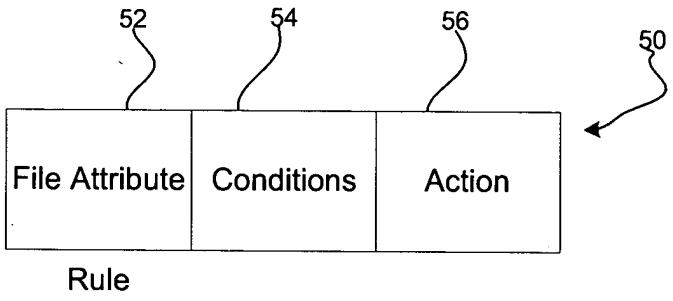
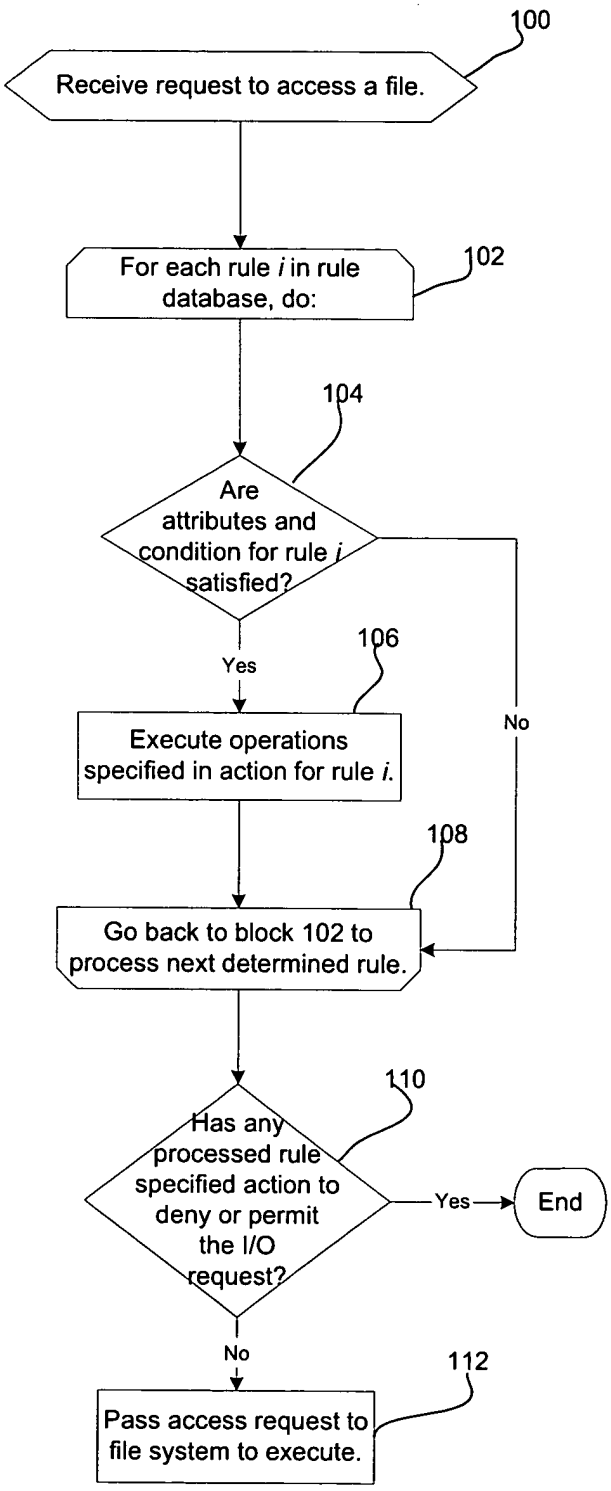


FIG. 3


100
Receive request to access a file.
For each rule i in rule database, do:
102
104
Are attributes and condition for rule i satisfied?
Yes
No
106
Execute operations specified in action for rule i.
108
Go back to block 102 to process next determined rule.
110
Has any processed rule specified action to deny or permit the I/O request?
Yes
End
No
112
Pass access request to file system to execute.

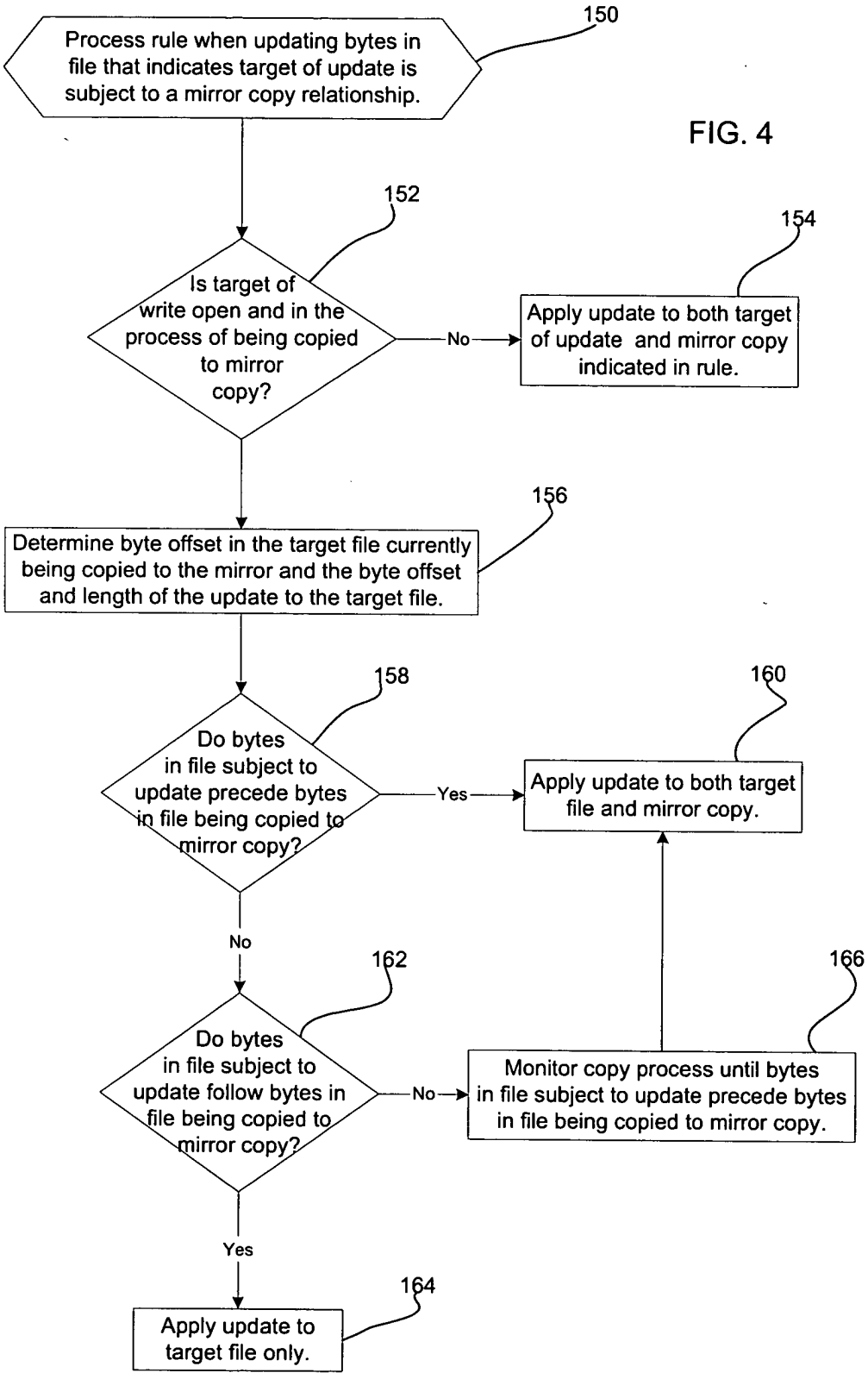
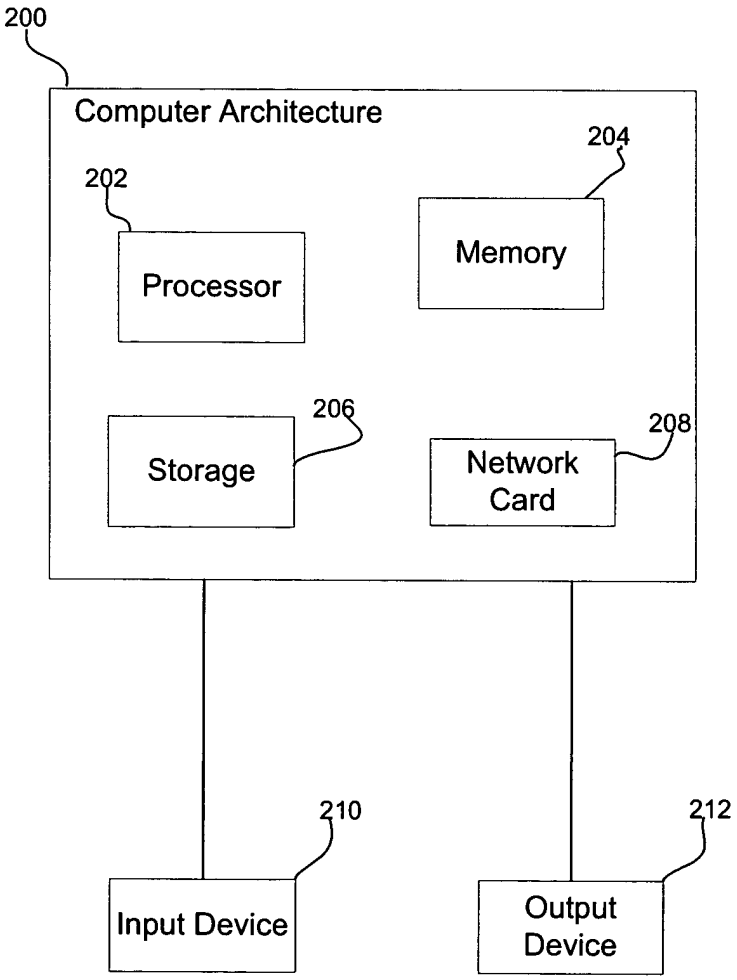

150
Process rule when updating bytes in file that indicates target of update is subject to a mirror copy relationship.
152
Is target of write open and in the process of being copied to mirror copy?
No
154
Apply update to both target of update and mirror copy indicated in rule.
156
Determine byte offset in the target file currently being copied to the mirror and the byte offset and length of the update to the target file.
158
Do bytes in file subject to update precede bytes in file being copied to mirror copy?
Yes
160
Apply update to both target file and mirror copy.
No
162
Do bytes in file subject to update follow bytes in file being copied to mirror copy?
No
166
Monitor copy process until bytes in file subject to update precede bytes in file being copied to mirror copy.
Yes
164
Apply update to target file only.

FIG. 4

FIG. 5


200
Computer Architecture
202
Processor
204
Memory
206
Storage
208
Network Card
210
Input Device
212
Output Device